emerald PUBLISHING

Journal of Children's Se

Implementation of evidence-based practices for early childhood social learning: A viewpoint on the role of teacher attitudes

Journal:	*Journal of Children's Services*
Manuscript ID	JCS-04-2019-0022.R2
Manuscript Type:	Research Paper
Keywords:	evidence-based practice, intervention, implementation, social learning, early childhood education, well being

Social learning refers to the process through which children develop important social skills such as getting along with peers, forming positive relationships, sharing, and perspective taking (Durlak *et al.*, 2011; Goodman *et al.,* 2015; Humphrey, 2013). The period of early childhood (birth-8 years old) is crucial for the acquisition of important social skills. During this period children can be very receptive to new learning, because of rapid brain growth and high susceptibility to environmental influences (Allen, 2011; Marope and Kaga, 2015). Strong socioemotional competencies acquired in early childhood contribute to laying the foundation for successful academic development and the acquisition of core academic subject knowledge (Center on the Developing Child at Harvard University, 2011; Nix *et al.,* 2013). Significant setbacks in the development of early childhood social skills can put children at risk of serious behaviour and mental health problems (Kretschmer *et al., 2014*), reading difficulties [redacted] 2014, 2018; Russell *et al.*, 2015; Wigelsworth *et al.*, 2017) and leaving school without qualifications (Jakobsen *et al.,* 2012).

Recent years have witnessed a growing interest in the use of evidence-based practices (EBPs) in education to promote pupil outcomes (Purper, 2016; Nelson and Campbell, 2017; Navarro-Cruz and Luschei, 2018). For instance, in the US, a considerable number of federally-funded platforms of EBP (evidence-based practice) dissemination exist, like the 'What Works Clearinghouse' databases (Purper, 2016). In the UK, several initiatives to promote the use of EBPs in education have been funded by the government. These include the Education Endowment Foundation (EEF) 'What Works Centre for Education' established in 2013 (Nelson and Campbell, 2017) and the Teaching and Learning, and Early Years Toolkits that provide teachers with easily accessible summaries of research on educational resources. In Australia, the 'Evidence for Learning' initiative, promoted by the Social Ventures Australia,

and partly supported by the EEF, provides professionals with information on good practices in education. Significant developments in the implementation of EBPs have been noted in the early childhood sector, especially in countries where early childhood provision is well-established (Navarro-Cruz and Luschei, 2018). Despite the range of EBPs for social learning and the efforts to increase the use of EBPs in education, the frequency and confidence with which EBPs for early childhood social learning are implemented can vary considerably (Evans *et al*., 2015; Heo *et al.,* 2014; McLeod *et al*., 2017; Steed and Roach, 2017; Sutherland *et al.,* 2013).

Implementation science studies the processes and factors that facilitate the implementation of EBPs in organisations (Bauer *et al.,* 2015; Nilsen, 2015), and its theoretical underpinnings offer a framework to understand the implementation of EBPs in education. Implementation science has identified a range of facilitating factors which operate at wider socio-political system, organisational, and individual level and include political agendas, policies, resources, leadership support, characteristics of the intervention, the implementer and the recipient(Aarons, 2005; Aarons *et al.,* 2011; Humphrey 2013). Admittedly, system and organisational level factors are critical to the implementation of EBPs. However, individual factors are equally important with considerable implications for successful implementation as innovations which depend on humans to operate are sensitive to individual factors (Aarons, 2005). A growing body of research suggests that professional attitudes towards EBPs can influence the implementation process significantly (Aarons, 2005; Domitrovich *et al.,* 2008; Williams and Beidas, 2019). In education, teachers are the key actors in the delivery of educational interventions and practices, and teacher factors have been found to influence quality in early childhood education and care significantly. For instance, teacher qualifications

comprise one of the strongest predictors of quality in preschool education and care (Sylva et al., 2014) and teacher preparation in discipline content is significantly associated with pupils' academic outcomes (Boyd et al., 2009). However, little of the research on professionals' attitudes for EBPs implementation in organisations has been extended in education (Monahan *et al.,* 2014

). Considering the importance of professionals' attitudes and the role of teachers as primary agents in the implementation process, it is argued that implementation efforts of educational EBPs including practices for early childhood social outcomes should consider these key players' attitudes towards EBPs.

The aim of this viewpoint is to draw on implementation science to contribute to our understanding of the role of teacher attitudes in EBP implementation. The viewpoint starts with a description of what EBP is and a summary of the literature on EBP for early childhood social learning to contextualise the topic. To contextualise the role of teacher attitudes, it then draws on long standing theoretical models of EBP implementation science to understand the contribution of professionals' attitudes to EBP implementation. It then considers the promotion of teacher engagement with research informed teaching (RIT) as a means of nurturing positive attitudes and openness towards EBPs for early childhood social learning. It goes on arguing that RIT may increase the appetite for EBPs by encouraging positive views about teaching practices that are supported by research evidence. To support this assertion, the concept of RIT is explored and an explanatory model of the proposed relationship between teacher attitudes, RIT and EBP is provided. Finally, the viewpoint concludes with recommendations for further research in EBPs implementation for early childhood social learning, RIT, and implications for teacher professional development and initial teacher training.

Evidence-based practices in education

Recent years have witnessed a significant increase in governmental policies and initiatives which promote the use of EBPs to raise quality in education (Cooper *et al.,* 2017; Farley *et al.,* 2018; Vostanis *et al.,* 2013). The term evidence-based practice (EBP) has its roots in clinical disciplines, but it has gained ground across other disciplines including education (Cook and Cook, 2013; Lilienfeld *et al.,* 2013). EBPs are often associated with either a named intervention programme or a specific approach or strategy. There is not a universal definition or theoretical framework for EBPs. The literature is suggestive of a consensus across disciplines that EBPs are synonymous with practices which have been consistently shown to have a positive impact on the individual by reliable research (Cook and Cook, 2013; Lilienfeld *et al.,* 2013). Reliable research often refers to research which meets specific quality standards typically the use of a randomised controlled trial (RCT), an experimental research design to examine the impact of an intervention programme or practice. RCTs are considered the 'gold standard' for establishing causality between an intervention and change in an individual's outcomes. In RCTs similar people are randomly assigned to receive either the intervention tested or a dummy intervention, alternative intervention, or no intervention at all. RCTs are not always feasible because of the limitations that 'real world' research imposes, for instance parents may not want their children to be randomized or randomization may not be considered ethical in specific contexts. Well-conducted quasi-experimental designs, such as pre-intervention matched control group (Bonell *et al.,* 2011) or regression discontinuity (West *et al.,* 2008), are viable alternatives to the RCT. When the focus is on the processes by which the intervention brings about change to pupils' outcomes naturalistic research approaches, such as observations and interviews, are suitable (Davies, 1999).

In education there is significant controversy over what comprises reliable research and evidence (Davies, 1999; Farley *et al.,* 2018; Goldacre, 2013; Nelson and Campbell, 2017; Norwich, 2014). This controversy is fueled by the complexities related with using RCTs as a 'gold standard' to inform educational practice (Bryk, 2015; Norwich, 2014), and by the importance of other types of research and evidence used in education. For example, teacher-generated research, such as practice-based research, and organisational-or system-level data, such as pupil and school data, are as important as externally produced experimental or quasi experimental evidence in informing educational practice (Brown *et al.,* 2017; Bryk, 2015; Norwich, 2014). In response to the complexities with defining EBPs in the context of education, Norwich (2014) endorses a 'hybrid approach' whereby quality experimental and non-experimental methodologies, including action research, are combined to address problems of practice. Similarly, Brown and colleagues' (Brown *et al.,* 2017; Brown and Zhang, 2017a) research on research-informed practice in education highlights the importance of quality evidence beyond experimental as another source of informing educational practice. In light of the above considerations, for the purposes of this viewpoint, a broader definition of EBPs is adopted which refers to practices that are considered to have a positive impact on pupils based on evidence derived from RCTs or other appropriate research methods.

Classroom-based EBPs to support early childhood social learning

Ample evidence shows that a wide range of evidence-based intervention programmes and instructional practices can promote children's social and emotional learning and reduce behavior problems in the classroom successfully (Waschbusch *et al.,* 2018). For example, findings from a landmark review (meta-analysis) of previously published studies showed that

children from kindergarten to high school who attended universal intervention programmes for social and emotional learning scored significantly higher on social, emotional, and academic achievement measures than children in the control groups (Durlak *et al.,* 2011). Additionally, a systematic review of teacher-led classroom-based interventions for social and emotional problems in 4-12 year-old children showed that some classroom-management programmes can decrease children's disruptive behaviours, such as aggression, disobedience, off-task behaviour, non-compliance, and symptoms of oppositional defiant disorder, successfully (Whear *et al.,* 2013). Furthermore, important review work by the Collaborative for Academic, Social, and Emotional Learning (CASEL), a leading organisation in the promotion of social and emotional learning, has shown that programmes that use one or more of the following four strategies can promote children's social and emotional skills effectively (Dusenbury *et al.,* 2015): 1) lessons of explicit instruction of social and emotional skills (e.g. identify happy/sad/angry using puppets); 2) implementation of general teaching practices that create the conditions for social and emotional learning, such as classroom rules, routines, and cooperative learning; 3) integration of social and emotional learning skills in the academic curriculum; 4) adoption of school-wide strategies that facilitate social and emotional learning. Studies also support the effectiveness of discrete behaviour management strategies that can be embedded in every-day educational practice to promote positive behaviour. Some of these practices include rules, problem-solving, modelling, promoting teacher-child relationship, and scaffolding (McLeod *et al.* 2017), verbal praise, planned ignoring, and redirection of inappropriate behaviour (Kern and Clemens, 2007; Parsonson, 2012; Simonsen *et al.,* 2008).

Contextualising the role of teacher attitudes in the implementation of EBPs for early childhood social learning

Professionals' attitudes about EBPs refer to the beliefs and opinions that professionals have about EBPs. In line with implementation research and long-standing theoretical frameworks of implementation in organisations, professionals' attitudes are considered one of the most important individual factors that can drive implementation success (e.g. Aarons, 2005; Aarons *et al.,* 2011; Fixsen *et al.,* 2005; Moullin *et al.,* 2019; Nilsen, 2015; Williams and Beidas, 2019). Staff attitudes can be a significant precursor of the decision about whether to try a new practice or not because the emotional aspect of the attitudes can influence significantly the decision-making processes of innovation adoption (Aarons *et al.,* 2012). Also, past research suggests that there is greater intervention and service acceptance if a significant proportion of the organisation's staff is positively inclined to adopt it (Detrich and Lewis, 2013; Wiggins *et al.,* 2012).

To appreciate the importance of professionals' attitudes for the implementation of EBPs it is important to consider them in the context of the implementation process. The implementation of EBPs is a complex, multiphase process which involves multiple influential factors operating at different ecological levels e.g. environmental, organisational, and individual (Novins *et al.,* 2013). Based on key frameworks used in implementation science, the implementation process of a practice can be summarised broadly into four phases (e.g. Damanpour and Schneider, 2006; Fixsen *et al.,* 2005; Greenhalgh *et al.,* 2004; Wiggins *et al.,* 2012). The first is a preparation phase which is often encountered in the literature as initiation or exploration phase and includes decisions on intervention or practice adoption. The second is the installation phase where the new practice or intervention gets started. The third is the implementation phase where the intervention or practice is ready for use and if required is further adapted based on

close monitoring and evaluation. The sustainability or routinisation phase is the final phase and includes the shift during which a practice or intervention becomes routine.

The preparation phase is very important because it determines the decision to proceed with the adoption of an intervention, service or practice (Aarons, 2005; Damanpour and Schneider, 2006; Frambach and Schillewaert, 2002; Schoenwald and Hoagwood, 2001; Simpson, 2002; Proctor *et al.,* 2011). The key factors influencing the process of adoption decision can be classified in to four distinct categories (Wisdom *et al.,* 2014): external system (e.g. governmental and policy factors), organisational, innovation, and individual. Because 'People are not passive recipients of innovations' (Greenhalgh *et al.,* 2004, p. 598) the role of individual factors is instrumental. Hence, various long-standing theoretical models of innovation adoption propose professionals attitudes to EBPs as one of the most influential factors of the adoption process at an individual level (Aarons, 2005; Frambach and Schillewaert, 2002; Greenhalgh *et al.,* 2004; Wisdom *et al.,* 2014; Smith *et al.,* 2018; Proctor *et al.,* 2011).

Considering the importance of professionals' attitudes in the application of innovations in organisations, the study of implementation of EBPs for early childhood social learning would be advanced by the examination of the facilitating role of teacher attitudes. Johnson (2017) explains that in an implementation context as 'heterogeneous' as the early childhood education context, understanding the individual factors that influence the decisions to act to support the implementation of an intervention is needed. Resources and organisational support, such as funding, leadership support, manageable workloads and opportunities for learning, are major facilitators of intervention implementation in education (Brown and Zhang, 2017a, 2017b). But is also recognised that teacher beliefs about EBPs could contribute significantly to the success

of the implementation process; arguably, before teachers accept and implement a practice, they may have to form a positive attitude about it.

The research on attitudes on EBPs implementation in education is not as extensive as in other fields (e.g. health care and business) (Johnson *et al.,* 2017) and we have not fully understood how the decision to adopt EBPs is influenced by teacher attitudes (Monahan *et al.,* 2014). Additionally, to the author's knowledge, the association between EBPs adoption and teacher attitudes towards EBPs in the context of early childhood social outcomes has not been examined systematically by previous studies. However, a growing body of research suggests that teacher views about innovations can influence the implementation process of EBPs. A recent study found that the intensity with which teachers implemented specific EBPs for children with autism was significantly associated with teacher views about the appeal of EBPs and the disparity between usual practice and research or academically based practices (Locke *et al.,* 2019). Another study found that teacher perceptions about their efficacy to handle behaviour difficulties was associated to teacher openness to adopt new and innovative practices (Johnson *et al.,* 2017). A quasi-experimental study used an intervention to cultivate 'supportive' beliefs and attitudes towards implementation of EBPs amongst educators and found that the changes in attitudes were significantly associated with higher levels of implementation of a large-scale multi-tier system of supports for pupils with social, emotional and behavioural difficulties (Cook *et al.,* 2015). Furthermore, teacher views about the benefits of an intervention have been found to influence intervention adoption (Clayton *et al.,* 2015; Stahmer *et al.,* 2018). For example, the developers of the School-Wide Positive Behaviour Support (SWPBS) implementation framework suggest that there is greater intervention 'buy-in' if at least 80% of the school staff agree to prioritise positive behaviour before implementation (Detrich and Lewis, 2013). Similarly, an experimental study of the

determinants of teacher participation in classroom-based intervention programmes for early childhood behaviour difficulties found that teachers who were more concerned over the implementation of an intervention, for instance in relation to intervention developmental appropriateness and leadership support, were less likely to implement it frequently (Baker *et al.,* 2010). The association was significant even after controlling for teacher experience, teacher education, and type of setting. To conclude, ample theoretical support and a growing body of research endorses the importance of teachers' attitudes for successful EBP implementation, but further research is required to understand their contribution to the adoption of EBPs for early childhood social learning.

Research-informed teaching: a promising approach to promote teacher attitudes towards EBPs for early childhood social learning

The impetus for evidence-based practice in education has led to the promotion of research-informed teaching (RIT), a term used to refer to informing teacher practice through knowledge acquired through teacher engagement with research (Brown *et al.,* 2017). In the context of RIT, engagement with research refers to the use of existing research to inform or transform pedagogic practice (Brown *et al.,* 2017). Some of the documented benefits of RIT include assistance with practice-based problem identification and problem solving in the context of high performing schools, association with positive teacher outcomes, such as improved knowledge and skills and confidence (Brown *et al.,* 2017), and school improvement in the form of information sharing about successful practices, testing of new ideas and the development and implementation of interventions (Mincu, 2014). Furthermore, elements of RIT such as use of research evidence are characteristics of successful teacher training and educational systems (Tatto, 2015).

Generally, few studies focus specifically on ways to promote positive attitudes towards EBPs to augment implementation (Cook *et al.,* 2015). It is proposed that research-informed teaching (RIT) could be a viable way to cultivate positive views towards EBPs among teachers and maximise chances of implementation. The pathway from RIT to EBPs for social learning is not fully understood but some studies with psychology students, for instance, suggest that an understanding of research and empirically supported interventions at training level are related to positive attitudes and openness to EBPs (Aarons *et al.,* 2012; Bearman *et al.,* 2015). Also, UK-based studies suggest that professional development on raising teacher awareness and engagement with research can be linked to more positive attitudes towards using research to inform teaching practices (Speight *et al.,* 2016; Rose *et al.,* 2017). It is plausible that an understanding of the importance and value of research and evidence from research to inform and transform educational practice could help teachers appreciate the value of using interventions and strategies supported by sound evidence for their effectiveness to promote children's social outcomes. As a result, higher appreciation of research through RIT engagement may promote more positive attitudes towards EBPs. This process can then stimulate a higher demand for EBPs resulting in teachers seeking for EBPs more actively which in turn can instigate higher chances of EBP adoption and implementation. It is therefore possible that increases in teacher engagement in RIT could be linked to increases in positive attitudes towards the adoption and implementation of EBPs. Figure 1 shows a conceptual model of the proposed pathway from RIT to EBP implementation and the role of teacher attitudes towards EBPs adoption. As Figure 1 shows, there are additional individual, organisational, and intervention-level factors that can influence the proposed relationships. Some factors often encountered in the literature are briefly summarised and described in the following paragraphs.

Individual level factors pertain to professionals' personal characteristics. For example, factors such as age, ethnicity, level of education, type of training, amount of professional experience, individual disposition to innovation adoption (Aarons and Sommerfeld, 2012) and knowledge of EBPs, were found to be associated with professionals' attitudes to adopt EBPs (Nakamura, *et al.,* 2011). In addition, professionals' self-efficacy, knowledge and familiarity with EBPs, degree of affiliation to the organisation, skills, emotions, such as stress and burnout, and motivation have been identified as important determinants of EBP implementation (Williams and Beidas, 2019).

Organisational-level factors include organisational culture and climate (Aarons *et al.,* 2012; Lyon *et al.,* 2018; Williams and Beidas, 2019). It has been found that a positive work climate was associated with less divergence between EBPs and professionals' own practice (Aarons *et al.,* 2012) and intentions to adopt EBPs (Williams *et al.,* 2017). Leadership conceptualised as providing guidance and support has also been related to professionals' attitudes (Aarons *et al.,* 2012; Aarons and Sommerfeld, 2012; Powell *et al.,* 2017; Williams and Beidas, 2019). Research in education has shown that high school teachers' perceived principal support and affiliation were linked to more openness to adopting EBPs (Johnson *et al.,* 2017). Additional facilitators of implementation include implementation climate, which refers to what extent the organisation rewards and supports the use of a specific practice, team working, whether a specific EBP is considered to be a priority by the organisation and aligned with the school philosophy and goals, and resources, such as time, materials and teacher support and training (Forman *et al.,* 2009; Williams and Beidas, 2019). Speight and colleagues (2016) identified

lack of time and the difficulties associated with applying research evidence in educational settings as the primary barriers to teachers' use of evidence-based approaches.

Finally, EBP characteristics include the type of intervention and the setting that is delivered in (Aarons *et al.,* 2012). For example, a study of preservice and student teachers found that the perceived suitability of the intervention, the amount of teacher time required and whether the intervention puts children at risk or has negative effects on other children may affect the judgments of intervention acceptability significantly (Witt *et al.,* 2017).

[Figure 1]

Final reflections and implications for research and practice

The early years are a critical developmental period and social learning comprises a building block for social and emotional wellbeing and academic achievement. By embedding EBPs in day-to-day early childhood professional practice we could increase the chances of supporting pupils' social outcomes successfully. The theoretical underpinnings of implementation science propose that professionals' attitudes towards EBPs are critical for implementation because they can determine very early in the implementation process the decision to adopt an intervention or practice. Clearly, EBPs are not 'self-implementing mechanisms that will be embraced and used automatically as they are identified' (Cook and Cook, 2013, p. 72). Prior to the implementation of any intervention it is important to ensure that those involved in the implementation process hold the right attitude before they can accept it and eventually implement it. However, little of the implementation research has been extended to the field of education and we have not yet fully understood if and how teachers' attitudes determine the implementation process of EBPs in the school setting (Johnson *et al.,* 2017). The study of

teacher attitudes, beliefs and perceptions of EBPs for early childhood social learning is an important step in enhancing our understanding of the factors and the processes that can lead to successful implementation. To advance the rigour of this research it will be necessary to consider the impact of teachers' attitudes in the context of other factors that are known to determine the implementation outcome and operate across different macro and micro system levels (e.g. society, organisation, individual, intervention) and time points in the lifecycle of the implementation process.

Ways to promote professionals' attitudes for EBP implementation have not been extensively studied (Cook *et al.,* 2015). In education, cultivating a culture of using research to inform teaching and practice is proposed as a viable way of shaping teacher attitudes towards EBPs for early childhood social learning. The investigation of the pathway from research informed teaching (RIT) to teachers' attitudes towards EBPs for social learning should be considered in relation to aspects of RIT and the context of its implementation. First, it is important to establish what forms of RIT can lead to positive attitudes towards EBPs for promoting pupil outcomes including social learning outcomes. For example, an important question is whether it is the engagement with research in the form of articles, books, training, or their combination that shapes teachers' views about EBP adoption. Another important question pertains to the impact of research awareness, including research methods understanding, on RIT and its role in the partway from RIT to teacher openness towards EBPs adoption. A working hypothesis is that research awareness raises teachers understanding of the significance of evidence from research, research methodologies and the importance of methodologically rigorous research to answer important questions about pedagogy and children's learning and, as a result, it triggers engagement with research which in turn stimulates use of research-based teaching. The

research in this area of study suggests that transforming educational research into pedagogical knowledge and practice is a non-linear complex process and that we need more research to understand how teacher knowledge around research is used to inform educational practice (Cain, 2015). Moreover, teacher use of research as a source of information to address issues of pedagogy is another topical area of enquiry. The literature suggests that there is an appetite among teachers for research use but there is a gap between teachers' intentions towards research and what is happening in practice (Cain 2015; Nelson *et al.*, 2015). For instance, UK-based research suggests that teachers may have positive views about 'externally-produced academic or professional research', but they do not use it often to inform their practice (Nelson *et al.*, 2015; Coldwell *et al.,* 2017). Finally, increasing research use and openness to empirically validated pedagogies may not be enough to lead to more frequent use of EBPs. The benefits of RIT are not 'comprehensively and systematically established' (Brown *et al.,* 2017) and although there is some evidence on its positive impact the research is still in its initial stages (Nelson and Campbell, 2017).

The identification of factors that influence the implementation of school-based EBPs for social learning will help school leaders and policymakers consider changes in in-service teacher professional development and pre-service teacher training that could impact the implementation of EBP both for social learning and more generally. Additionally, the findings about the impact of RIT on teacher attitudes for EBPs for social learning will contribute to the ongoing research on initiatives that look to enhance the use of research evidence to inform practice among educators through professional development interventions. Significant research in this area was pioneered by the EEF's (Education Endowment Foundation) Research Use in Schools initiative which launched a series of studies to examine whether research engagement

strategies can contribute to teachers' use of, and attitudes towards, academic research to support pupil progress. Some of the studies yielded promising results about professional development efforts to enhance teacher research use. For instance, the evaluation trial of the efficacy of the Research Learning Communities model found a small positive association of teacher use of research and intervention receipt (Rose *et al.,* 2017). The model involves practitioner engagement in a learning process that allows connections to be made between research and own practical knowledge and personal research (Brown *et al.,* 2017; Brown and Zhang, 2017b). However, the authors note that the relationship may had to do with teacher personal characteristics, such as level of postgraduate qualification or seniority. Another study showed that examination of an evidence-informed professional development programme aimed at enhancing the use of research in the classroom and promote a learning culture was related with more positive attitudes to using research for the teachers who were intensively involved in the prorgamme (Speight *et al.,* 2016). An interesting extension of this line of research would be the examination of the impact of promising interventions on teacher attitudes towards use of EBPs for social learning and their impact on the progress of pupils with social and emotional difficulties.

The research in the pathway from research informed teaching practice at teacher preparation level to attitudes towards EBPs can contribute to our understanding of the change mechanism of trainee teacher behavior and to the development of new conceptual tools to explain teacher professional learning and preparation to meet the needs of children with difficulties not only in the social learning domain but also across the curriculum. It will also raise important questions about research capacity building in non-university-based routes of teacher training and how openness towards EBPs is encouraged if not through research engagement. Additionally,

teacher training programs are well-positioned to address issues around openness to research and EBPs more effectively than in-service professional development activities do. Compared to a short and budget -restrained in-service professional development course, an undergraduate or postgraduate teacher training programme could facilitate the systematic introduction of research methods and literature on evidence-based interventions and practices. Research and EBP awareness will allow students to gradually develop their skills to make connections between research and practice and with time develop an open view towards research and EBPs before even they hit the classroom. Considering the above possibilities, the study of whether initial teacher training can contribute to bridging the gap between research and practice is of great importance.

References

Aarons, G.A. (2005), "Measuring Provider Attitudes Toward Evidence-Based Practice: Consideration of Organisational Context and Individual Differences", *Child and adolescent psychiatric clinics of North America*, Vol. 14 No. 2, pp. 255-271.

Aarons, G., Green, A. and Miller, E. (2012), "Researching Readiness for Implementation of Evidence-Based Practice" in Kelly, B. and Perkins, D., (Eds)., *Handbook of Implementation Science for Psychology in Education*, Cambridge University Press, Cambridge, pp. 150-164.

Aarons, G.A., Hurlburt, M. and Horwitz, S.M. (2011), "Advancing a conceptual model of evidence-based practice implementation in public service sectors", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 38 No. 1, pp. 4-23.

Allen, G. (2011), "Early intervention: the next steps, an independent report to Her Majesty's government by Graham Allen MP″ available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284086/early-intervention-next-steps2.pdf (accessed 08 November 2019).

Aarons, G.A. and Sommerfeld, D.H. (2012), "Leadership, innovation climate, and attitudes toward evidence-based practice during a statewide implementation", *Journal of the American Academy of Child & Adolescent Psychiatry*, Vol. 51 No. 4, pp.423-431.

Bauer, M.S., Damschroder, L., Hagedorn, H., Smith, J. and Kilbourne, A.M. (2015), "An introduction to implementation science for the non-specialist", *BMC Psychology*, Vol. 3 No. 1, pp. 32.

Bearman, S.K., Wadkins, M., Bailin, A. and Doctoroff, G. (2015), "Pre-practicum training in professional psychology to close the research–practice gap: Changing attitudes toward evidence-based practice", *Training and Education in Professional Psychology*, Vol. *9 No.* 1, pp.13-20.

Blair, C. and Diamond, A. (2008), "Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure", *Development and Psychopathology*, Vol. 20 No. 3, pp. 899-911.

Bonell, C.P., Hargreaves, J., Cousens, S., Ross, D., Hayes, R., Petticrew, M. and Kirkwood, B.R. (2011), "Alternatives to randomisation in the evaluation of public health interventions: design challenges and solutions", *Journal of Epidemiology and Community Health*, Vol. 65 No. 7, pp. 582-587.

Boyd, D.J., Grossman, P.L., Lankford, H., Loeb, S. and Wyckoff, J. (2009), "Teacher preparation and student achievement" *Educational Evaluation and Policy Analysis*, Vol. 31 No 4, pp.416-440.

Brown, C., Schildkamp, K. and Hubers, M.D. (2017), "Combining the best of two worlds: a conceptual proposal for evidence-informed school improvement", *Educational Research*, Vol. 59 No. 2, pp. 154-172.

Brown, C. and Zhang, D. (2017a), "Accounting for discrepancies in teachers' attitudes towards evidence use and actual instances of evidence use in schools", *Cambridge Journal of Education*, Vol. 47 No. 2, pp. 277-295.

Brown, C. and Zhang, D. (2017b), "How can school leaders establish evidence-informed Schools: An analysis of the effectiveness of potential school policy levers", *Educational Management Administration and Leadership*, Vol. 45 No. 3, pp. 382-401.

Bryk, A.S. (2015), "2014 AERA distinguished lecture: Accelerating how we learn to improve", *Educational Researcher*, Vol. 44 No. 9, pp. 467-477.

Burn, K. and Mutton, T. (2015), "A review of 'research-informed clinical practice'in initial teacher education", *Oxford Review of Education*, Vol. 41 No. 2, pp.217-233.

Burns, T. and Schuller, T. (2007), "The evidence agenda" in OECD (Ed.) *Evidence in education: Linking research and policy*, OECD, Paris, pp. 15-32.

Cain, T. (2015), "Teachers' engagement with research texts: beyond instrumental, conceptual or strategic use", *Journal of Education for Teaching*, Vol. 41 No. 5, pp. 478-492.

Center on the Developing Child at Harvard University (2011), "Building the Brain's "Air Traffic Control" System: How Early Experiences Shape the Development of Executive Function: Working Paper No. 11.", available at: https://developingchild.harvard.edu/wp-content/uploads/2011/05/How-Early-Experiences-Shape-the-Development-of-Executive-Function.pdf (accessed 15 December 2017).

Cook, C.R., Lyon, A.R., Kubergovic, D., Wright, D.B. and Zhang, Y. (2015), "A supportive beliefs intervention to facilitate the implementation of evidence-based practices within a multi-tiered system of supports", *School Mental Health*, Vol. 7 No. 1, pp.49-60.

Coldwell, M., Greany, T., Higgins, S., Brown, C., Maxwell, B., Stiell, B., Stoll, L., Willis, B. and Burns, H. (2017), "Evidence-informed teaching: an evaluation of progress in England", available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/625007/Evidence-informed_teaching_-_an_evaluation_of_progress_in_England.pdf (08 December 2018).

Cook, B.G. and Cook, S.C. (2013), "Unraveling Evidence-Based Practices in Special Education", *Journal of Special Education*, Vol. 47 No. 2, 71-82.

Cooper, A., Klinger, D.A. and McAdie, P. (2017), "What do teachers need? An exploration of evidence-informed practice for classroom assessment in Ontario", *Educational Research*, Vol. 59 No. 2, pp. 190-208.

Damanpour, F. and Schneider, M. (2006), "Phases of the Adoption of Innovation in Organisations: Effects of Environment, Organisation and Top Managers", *British Journal of Management*, Vol. 17 No. 3, pp. 215-236.

Davies, P. (1999), "What is evidence-based education?", *British Journal of Educational Studies*, Vol. 47 No. 2, pp. 108-121.

Detrich, R. and Lewis, T. (2013), "A Decade of Evidence-Based Education: Where Are We and Where Do We Need to Go?", *Journal of Positive Behavior Interventions*, Vol. 15 No. 4, pp. 214-220.

Domitrovich, C.E., Bradshaw, C.P., Poduska, J.M., Hoagwood, K., Buckley, J.A., Olin, S., Romanelli, L.H., Leaf, P.J., Greenberg, M.T. and Ialongo, N.S. (2008), "Maximizing the implementation quality of evidence-based preventive interventions in schools: A conceptual framework" *Advances in School Mental Health Promotion*, Vol. 1 No 3, pp.6-28.

Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D. and Schellinger, K.B. (2011), "The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions", *Child Development*, Vol. 82 No. 1, pp. 405-432.

Dusenbury, L., Calin, S., Domitrovich, C. and Weissberg, R.P. (2015), "What Does Evidence-Based Instruction in Social and Emotional Learning Actually Look Like in Practice? A Brief on Findings from CASEL's Program Reviews", available at: https://www.casel.org/wp-content/uploads/2016/08/PDF-25-CASEL-Brief-What-Does-SEL-Look-Like-in-Practice-11-1-15.pdf (accessed 18 July 2018).

Evans, R., Murphy, S. and Scourfield, J. (2015), "Implementation of a school-based social and emotional learning intervention: understanding diffusion processes within complex systems", *Prevention Science*, Vol. 16 No. 5, pp.754-764.

Farley, K.S., Brock, M.E. and Winterbottom, C. (2018), "Evidence-Based Practices: Providing Guidance for Early Childhood Practitioners", *Journal of Research in Childhood Education*, Vol. 32 No. 1, pp. 1-13.

Fixsen, D.L., Naoom, S.F., Blase, K.A., Friedman, R.M. and Wallace, F. (2005), "Implementation Research: A Synthesis of the Literature", available at:

https://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/NIRN-MonographFull-01-2005.pdf (accessed 20 May 2018).

Frambach, R.T. and Schillewaert, N. (2002), "Organisational innovation adoption - A multi-level framework of determinants and opportunities for future research", *Journal of Business Research*, Vol. 55 No. 2, pp. 163-176.

Forman, S.G., Olin, S.S., Hoagwood, K.E., Crowe, M. and Saka, N. (2009), "Evidence-based interventions in schools: Developers' views of implementation barriers and facilitators", *School Mental Health*, Vol. 1 No. 26, pp. 26-36.

Goldacre, B. (2013), "Building evidence into education", available at: http://media.education.gov.uk/assets/files/pdf/b/ben%20goldacre%20paper.pdf (accessed 6 March 2018).

Goodman, A., Joshi, H., Nasim, B. and Tyler, C. (2015), "Social and emotional skills in childhood and their long-term effects on adult life", available at: file:///C:/Users/akall/Downloads/social-and-emotional-skills-in-childhood-and-their-long-term-effects-on-adult-life.pdf (accessed 8 August 2018).

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P. and Kyriakidou, O. (2004), "Diffusion of innovations in service organisations: Systematic review and recommendations", *Milbank Quarterly*, Vol. 82 No. 4, pp. 581-629.

Heo, K.H., Cheatham, G.A., Hemmeter, M.L. and Noh, J. (2014), "Korean early childhood educators' perceptions of importance and implementation of strategies to address young children's social-emotional competence", *Journal of Early Intervention*, Vol. 36 No. 1, pp. 49-66.

Horwitz, S.M., Chamberlain, P., Landsverk, J. and Mullican, C. (2010),"Improving the mental health of children in child welfare through the implementation of evidence-based parenting interventions", *Administration and Policy in Mental Health*, Vol. 37 No. (1-2), pp. 27-39.

Humphrey, N. (2013), *Social and emotional learning: A critical appraisal*, London, SAGE Publications Limited.

Jakobsen, I. S., Fergusson, D., and Horwood, J. L. (2012), "Early conduct problems, school achievement and later crime: Findings from a 30-year longitudinal study", *New Zealand Journal of Educational Studies,* Vol. 47 No. 1, pp. 123.

Johnson, L.D. (2017), "Scaling the pyramid model across complex systems providing early care for preschoolers: Exploring how models for decision making may enhance implementation science", *Early Education and Development*, Vol. 28 No. 7, pp. 822-838.

Johnson, S.R., Pas, E.T., Loh, D., Debnam, K.J. and Bradshaw, C.P. (2017), "High school teachers' openness to adopting new practices: The role of personal resources and organizational climate", *School Mental Health*, Vol. 9 No. 1, pp.16-27.

Judkins, M., Stacey, O., McCrone, T. and Inniss, M. (2014). "Teachers' Use of Research Evidence: A case study of United Learning schools", available at:

https://www.nfer.ac.uk/publications/IMUL01/IMUL01researchsummary.pdf (accessed 21 August 2019).

[redacted]

[redacted]

Kern, L. and Clemens, N.H. (2007), "Antecedent strategies to promote appropriate classroom behavior", *Psychology in the Schools*, Vol. 44 No. 1, pp. 65-75.

Kretschmer, T., Hickman, M., Doerner, R., Emond, A., Lewis, G., Macleod, J., Maughan, B., Munafo, M.R. and Heron, J. (2014), "Outcomes of childhood conduct problem trajectories in early adulthood: findings from the ALSPAC study", *European Child and Adolescent Psychiatry*, Vol. 23 No. 7, pp. 539-549.

Lilienfeld, S.O., Ritschel, L.A., Lynn, S.J., Cautin, R.L. and Latzman, R.D. (2013), "Why many clinical psychologists are resistant to evidence-based practice: Root causes and constructive remedies", *Clinical Psychology Review*, Vol. 33 No.7, pp. 883-900.

Locke, J., Lawson, G.M., Beidas, R.S., Aarons, G.A., Xie, M., Lyon, A.R., Stahmer, A., Seidman, M., Frederick, L., Oh, C. and Spaulding, C. (2019), "Individual and organizational factors that affect implementation of evidence-based practices for children with autism in public schools: a cross-sectional observational study." *Implementation Science,* Vol. 14 No. 29, pp. 1-9.

Lyon, A.R., Cook, C.R., Brown, E.C., Locke, J., Davis, C., Ehrhart, M. and Aarons, G.A. (2018), "Assessing organizational implementation context in the education sector: confirmatory factor analysis of measures of implementation leadership, climate, and citizenship" *Implementation Science*, Vol. 13 No. 1, pp.5.

Marope, P.T.M. and Kaga, Y. (2015), "Investing against evidence: The global state of early childhood care and education", available at: https://unesdoc.unesco.org/ark:/48223/pf0000233558 (accessed 20 July 2018).

McLeod, B.D., Sutherland, K.S., Martinez, R.G., Conroy, M.A., Snyder, P.A. and Southam-Gerow, M.A. (2017), "Identifying Common Practice Elements to Improve Social, Emotional, and Behavioral Outcomes of Young Children in Early Childhood Classrooms", *Prevention Science*, Vol. 18 No. 2, pp. 204-213.

Mincu, M.E. (2015), "Teacher quality and school improvement: what is the role of research?", *Oxford Review of Education*, Vol. 41 No. 2, pp.253-269.

Moullin, J.C., Dickson, K.S., Stadnick, N.A., Rabin, B., Aarons, G. (2019), "Systematic review of the Exploration, Preparation, Implementation, Sustainment (EPIS) framework", *Implementation Science*, Vol. 14 No. 1, pp. 1-16.

Monahan, K.E., McDaniel, H.L., George, M.W. and Weist, M.D. (2014), "Assessing teachers' attitudes and willingness to adopt evidence-based practices in classrooms: A pilot study." *Emotional & Behavioral Disorders in Youth*, Vol. 14 No. 2, pp.37-42.

Nakamura, B.J., Higa-McMillan, C.K., Okamura, K.H. and Shimabukuro, S. (2011), "Knowledge of and attitudes towards evidence-based practices in community child mental health practitioners", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 38 No. 4, pp.287-300.

Navarro-Cruz, G.E. and Luschei, T. (2018), "International Evidence on Effective Early Childhood Care and Education Programs: A Review of Best Practices", *Global Education Review*, Vol. 5 No. 2, pp. 8-27.

Nelson, J. and Campbell, C. (2017), "Evidence-informed practice in education: meanings and applications", *Educational Research*, Vol. 59 No.2, pp.127-135.

Nelson, J., Mehta, P., Sharples, J. and Davey, C. (2015), "Measuring teachers' research engagement: Findings from a pilot study", available at: https://educationendowmentfoundation.org.uk/public/files/Evaluation/Research_Use/NFER_Research_Use_pilot_report_-_March_2017_for_publication.pdf (accessed 18 March 2018).

Nilsen, P. (2015), "Making sense of implementation theories, models and frameworks", *Implementation science*, Vol. 10 No. 1, pp. 10-53.

Nix, R.L., Bierman, K.L., Domitrovich, C.E. and Gill, S. (2013), "Promoting Children's Social-Emotional Skills in Preschool Can Enhance Academic and Behavioral Functioning in Kindergarten: Findings From Head Start REDI", *Early Education and Development*, Vol. 24 No. 7, pp. 1000-1019.

Norwich, B. (2014), "Chapter 2. Context, interests and methodologies", *Journal of Research in Special Educational Needs,* Vol. 14 No. 3, pp. 193-196.

Novins, D.K., Green, E., A., Legha, R.K. and Aarons, G.A. (2013), "Dissemination and Implementation of Evidence-Based Practices for Child and Adolescent Mental Health: A Systematic Review", *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 52 No. 10, pp. 1009–1025.

Parsonson, B.S. (2012), "Evidence-Based Classroom Behaviour Management Strategies", *Kairaranga*, Vol. 13 No. 1, pp. 16-23.

Powell, B.J., Mandell, D.S., Hadley, T.R., Rubin, R.M., Evans, A.C., Hurford, M.O. and Beidas, R.S. (2017), "Are general and strategic measures of organizational context and leadership associated with knowledge and attitudes toward evidence-based practices in public behavioral health settings? A cross-sectional observational study", *Implementation Science*, Vol. 12 No. 64, pp. 1-13.

Procter, R. (2015), "Teachers and school research practices: the gaps between the values and practices of teachers", *Journal of Education for Teaching*, Vol. 41 No. 5, pp. 464-477.

Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Griffey, R. and Hensley, M. (2011), "Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 38 No. 2, pp.65-76.

Purper, C.J. (2016), "Right at Your Fingertips: Important Web-Based Resources for Understanding Evidence-Based Practices", *Early Childhood Education Journal*, Vol. 44 No. 4, pp. 403-408.

Rose, J., Thomas, S., Zhang, L., Edwards, A., Augero, A. and Roney, P. (2017), "Research Learning Communities: Evaluation Report and Executive Summary *EEF",* available at: https://files.eric.ed.gov/fulltext/ED581267.pdf (accessed 14 January 2020).

Russell, G., Ryder, D., Norwich, B. and Ford, T. (2015), "Behavioural Difficulties That Co-occur With Specific Word Reading Difficulties: A UK Population-Based Cohort Study", *Dyslexia*, Vol. 21 No. 2, pp. 123-141.

Schoenwald, S.K. and Hoagwood, K. (2001), "Effectiveness, transportability, and dissemination of interventions: What matters when?", *Psychiatric services*, Vol. 52 No. 9, pp. 1190-1197.

Simonsen, B., Fairbanks, S., Briesch, A., Myers, D. and Sugai, G. (2008), "Evidence-based practices in classroom management: Considerations for research to practice", *Education and Treatment of Children*, Vol. 31 No. 3, pp. 351-380.

Simpson, D.D. (2002), "A conceptual framework for transferring research to practice", *Journal of Substance Abuse Treatment*, Vol. 44 No. 4, pp. 171-182.

Smith, R.A., Kim, Y., Zhu, X., Doudou, D.T., Sternberg, E.D. and Thomas, M.B. (2018), "Integrating models of diffusion and behaviour to predict innovation adoption, maintenance, and social diffusion", *Journal of health communication*, Vol. 23 No. 3, pp.264-271.

Speight, S., Callanan, M., Griggs, J. and Cartagena Farias, J. (2016), "Rochdale Research into Practice - Evaluation Report, EEF", available at: https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/EEF_Project_Report_ResearchintoPractice (accessed 14 January 2020).

Stahmer, A.C., Suhrheinrich, J., Schetter, P.L. and Hassrick, E.M. (2018), "Exploring multi-level system factors facilitating educator training and implementation of evidence-based practices (EBP): a study protocol", *Implementation Science*, Vol 13 No 3, pp. 1-11.

Steed, E.A. and Roach, A.T. (2017), "Childcare Providers' Use of Practices to Promote Young Children's Social-Emotional Competence", *Infants and Young Children*, Vol. 30 No. 2, pp. 162-171.

Sutherland, K.S., McLeod, B.D., Conroy, M.A. and Cox, J.R. (2013), "Measuring Implementation of Evidence-Based Programs Targeting Young Children at Risk for Emotional/Behavioral Disorders Conceptual Issues and Recommendations", *Journal of Early Intervention*, Vol. 35 No. 2, pp. 129-149.

Sylva, K., Melhuish, E., Sammons, P., Siraj, I., Taggart, B., Smees, R., Toth, K., Welcomme, W. and Hollingworth, K. (2014), "Students' educational and developmental outcomes at age 16: Effective Pre-school, Primary and Secondary Education (EPPSE 3-16) Project research report", available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/351496/RR354_-_Students__educational_and_developmental_outcomes_at_age_16.pdf (accessed 18 December 2018).

Tatto, M.T. (2015), "The role of research in the policy and practice of quality teacher education: An international review", *Oxford Review of Education*, Vol. 41 No. 2, pp.171-201.

Vostanis, P., Humphrey, N., Fitzgerald, N., Deighton, J. and Wolpert, M. (2013), "How do schools promote emotional well-being among their pupils? Findings from a national scoping survey of mental health provision in English schools", *Child and Adolescent Mental Health*, Vol. 18 No. 3, pp. 151-157.

Waschbusch, D.A., Breaux, R.P. and Babinski, D.E. (2018), "School-Based Interventions for Aggression and Defiance in Youth: A Framework for Evidence-Based Practice", *School Mental Health*, Vol. 11 No. 1, pp. 1-14.

West, S.G., Duan, N., Pequegnat, W., Gaist, P., Des Jarlais, D.C., Holtgrave, D., Szapocznik, J., Fishbein, M., Rapkin, B. and Clatts, M. (2008), "Alternatives to the randomized controlled trial", *American Journal of Public Health*, Vol. 98 No. 8, pp. 1359-1366.

Whear, R., Thompson-Coon, J., Boddy, K., Ford, T., Racey, D. and Stein, K. (2013), "The effect of teacher-led interventions on social and emotional behaviour in primary school children: a systematic review", *British Educational Research Journal*, Vol. 39 No. 2, pp. 383-420.

Wigelsworth, M., Qualter, P. and Humphrey, N. (2017), "Emotional self-efficacy, conduct problems, and academic attainment: Developmental cascade effects in early adolescence", *European Journal of Developmental Psychology*, Vol. 22 No. 2, pp.172-189.

Wiggins, M., Austerberry, H. and Ward, H. (2012), "Implementing evidence-based programmes in children's services: key issues for success", available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/183483/DFE-RR245.pdf (accessed 09 January 2019).

Williams, N.J. and Beidas, R.S. (2019), "Annual Research Review: The state of implementation science in child psychology and psychiatry: a review and suggestions to advance the field", *Journal of Child Psychology and Psychiatry,* Vol. 60 No. 4, pp. 430-450.

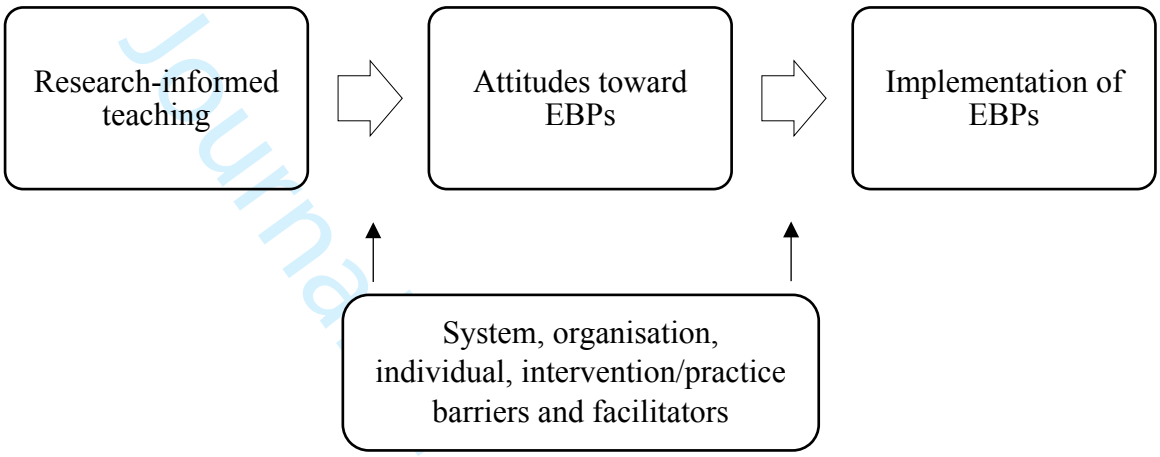
Williams, N.J., Glisson, C., Hemmelgarn, A. and Green, P. (2017), Mechanisms of change in the ARC organizational strategy: increasing mental health clinicians' EBP adoption through improved organizational culture and capacity, *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 44 No. 2, pp. 269-283.

Winch, C., Oancea, A. and Orchard, J. (2015), "The contribution of educational research to teachers' professional learning: Philosophical understandings." *Oxford Review of Education*, Vol. 41 No. 2, pp. 202-216.

Wisdom, J.P., Chor, K.H.B., Hoagwood, K.E. and Horwitz, S.M. (2014), "Innovation adoption: a review of theories and constructs", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 41 No. 4, pp. 480-502.

Witt, J.C., Elliott, S.N. and Martens, B.K. (2017), "Republication of "acceptability of behavioral lnterventions used in classrooms: The influence of amount of teacher time, severity of behavior problem, and type of intervention", *Behavioral Disorders*, Vol. 43 No. 1, pp.262-268.

Figure 1. A conceptual model of the association between RIT, teachers' attitudes about EBPs and the implementation of EBPs for early childhood social learning



Social learning refers to the process through which children develop important social skills such as getting along with peers, forming positive relationships, sharing, and perspective taking (Durlak *et al.*, 2011; Goodman *et al.,* 2015; Humphrey, 2013) The period of early childhood (birth-8 years old) is crucial for the acquisition of important social skills. During this period children can be very receptive to new learning, because of rapid brain growth and high susceptibility to environmental influences (Allen, 2011; Marope and Kaga, 2015). Strong socioemotional competencies acquired in early childhood contribute to laying the foundation for successful academic development and the development of core academic subjects in middle childhood, such as maths (Center on the Developing Child at Harvard University, 2011; Nix *et al.,* 2013). Significant setbacks in the development of early childhood social skills can put children at risk of serious behaviour and mental health problems (Kretschmer *et al., 2014*), reading difficulties, and leaving school without qualifications (Jakobsen *et al.,* 2012; [redacted] 2014, 2018; Russell *et al.*, 2015; Wigelsworth *et al.*, 2017).

Recent years have witnessed a growing interest in the use of evidence-based practices (EBPs) in education to promote pupil outcomes (Purper, 2016; Nelson and Campbell, 2017; Navarro-Cruz and Luschei, 2018). However, the frequency and confidence with which EBPs for early childhood social learning are implemented can vary considerably (Heo *et al.,* 2014; Steed and Roach, 2017; Sutherland *et al.,* 2013). Professional attitudes are considered central in the implementation of EBPs in organisations. In education, teachers are the key actors in the delivery of educational interventions and practices, and teacher factors have been found to influence quality in early childhood education and care significantly. For instance, teacher qualifications comprise one of the strongest predictors of quality in preschool education and

care (Sylva *et al.,* 2014). This viewpoint discusses the importance of teacher attitudes in the success of EBPs implementation in the context of early childhood social learning.

Evidence-based practices in education

Recent years have witnessed a significant increase in governmental policies and initiatives which promote the use of EBPs to raise quality in education (Cooper *et al.,* 2017; Farley *et al.,* 2018; Vostanis *et al.,* 2013). The term evidence-based practice (EBP) has its roots in clinical disciplines, but it has gained ground across other disciplines including education (Cook and Cook, 2013; Lilienfeld *et al.,* 2013). EBPs are often associated with either a named intervention programme or a specific approach or strategy. There is not a universal definition or theoretical framework for EBPs. The literature is suggestive of a consensus across disciplines that EBPs are synonymous with practices which have been consistently shown to have a positive impact on the individual by reliable research (Cook and Cook, 2013; Lilienfeld *et al.,* 2013). Reliable research often refers to research which meets specific quality standards typically the use of a randomised controlled trial (RCT), an experimental research design to examine the impact of an intervention programme or practice. RCTs are considered the 'gold standard' for establishing causality between an intervention and change in an individual's outcomes. In RCTs similar people are randomly assigned to receive either the intervention tested or a dummy intervention, alternative intervention, or no intervention at all. RCTs are not always feasible because of the limitations that 'real world' research imposes, for instance parents may not want their children to be randomized or randomization may not be considered ethical in specific contexts. Well-conducted quasi-experimental designs, such as pre-intervention matched control group (Bonell *et al.,* 2011) or regression discontinuity (West *et al.,* 2008), are viable alternatives to the RCT. When the focus is on the processes by which the intervention brings

about change to pupils' outcomes naturalistic research approaches, such as observations and interviews, are suitable (Davies, 1999).

In education there is significant controversy over what comprises reliable research and evidence (Davies, 1999; Farley *et al.,* 2018; Goldacre, 2013; Nelson and Campbell, 2017; Norwich, 2014). This controversy is fueled by the complexities related with using RCTs as a 'gold standard' to inform educational practice (Bryk, 2015; Norwich, 2014), and by the importance of other types of research and evidence used in education. For example, teacher-generated research, such as practice-based research, and organisational-or system-level data, such as pupil and school data, are as important as externally produced experimental or quasi experimental evidence in informing educational practice (Brown *et al.,* 2017; Bryk, 2015; Norwich, 2014). In response to the complexities with defining EBPs in the context of education, Norwich (2014) endorses a 'hybrid approach' whereby quality experimental and non-experimental methodologies, including action research, are combined to address problems of practice. Similarly, Brown and colleagues' (Brown *et al.,* 2017; Brown and Zhang, 2017a) research on research-informed practice in education highlights the importance of quality evidence beyond experimental as another source of informing educational practice. In light of the above considerations, for the purposes of this viewpoint, a broader definition of EBPs is adopted which refers to practices that are considered to have a positive impact on pupils based on evidence derived from RCTs or other appropriate research methods.

Classroom-based EBPs to support early childhood social learning

Ample evidence shows that a wide range of evidence-based intervention programmes and instructional practices can promote children's social and emotional learning and reduce behavior problems in the classroom successfully (Waschbusch *et al.,* 2018). For example, findings from a landmark review (meta-analysis) of previously published studies showed that children from kindergarten to high school who attended universal intervention programmes for social and emotional learning scored significantly higher on social, emotional, and academic achievement measures than children in the control groups (Durlak *et al.,* 2011). Additionally, a systematic review of teacher-led classroom-based interventions for social and emotional problems in 4-12 year-old children showed that some classroom-management programmes can decrease children's disruptive behaviours, such as aggression, disobedience, off-task behaviour, non-compliance, and symptoms of oppositional defiant disorder, successfully (Whear et al., 2013). Furthermore, important review work by the Collaborative for Academic, Social, and Emotional Learning (CASEL), a leading organisation in the promotion of social and emotional learning, has shown that programmes that use one or more of the following four strategies can promote children's social and emotional skills effectively (Dusenbury *et al.,* 2015): 1) lessons of explicit instruction of social and emotional skills (e.g. identify happy/sad/angry using puppets); 2) implementation of general teaching practices that create the conditions for social and emotional learning, such as classroom rules, routines, and cooperative learning; 3) integration of social and emotional learning skills in the academic curriculum; 4) adoption of school-wide strategies that facilitate social and emotional learning. Studies also support the effectiveness of discrete behaviour management strategies that can be embedded in every-day educational practice to promote positive behaviour. Some of these practices include rules, problem-solving, modelling, promoting teacher-child relationship, and

scaffolding (McLeod *et al.* 2017), verbal praise, planned ignoring, and redirection of inappropriate behaviour (Kern and Clemens, 2007; Parsonson, 2012; Simonsen *et al.,* 2008).

Contextualising the role of teacher attitudes in the implementation of EBPs for early childhood social learning

Despite the range of EBPs for social learning and the efforts to increase the use of EBPs in educational settings teachers struggle to use them to address children's social learning needs (Evans *et al*., 2015; McLeod *et al*., 2017; Sutherland *et al*., 2013). Implementation science studies the processes and factors that influence the systematic delivery of EBPs across different organisational settings (Nilsen, 2015) and its theoretical underpinnings offer a helpful framework to understand the implementation of EBPs in education. Implementation research and long-standing theoretical frameworks of implementation in organisations show that a wide range of factors contribute to the implementation of EBPs (e.g. Aarons, 2005; Aarons *et al.,* 2011; Fixsen *et al.,* 2005; Moullin *et al.,* 2019; Nilsen, 2015; Williams and Beidas, 2019). These factors can operate at wider socio-political system, organisational, and individual level, and include political agendas, policies, resources, leadership support, and characteristics of the intervention, the implementer and the recipient. Admittedly, system and organisational level factors are critical to the implementation of EBPs. However, individual factors are equally important with considerable implications for the success of the implementation of EBPs as innovations which depend on humans to operate are susceptible to individual factors (Aarons, 2005). Professional attitudes refer to the beliefs and opinions that professionals have about EBPs and comprise one of the most important individual factors that can drive implementation (Williams and Beidas, 2019). Staff attitudes can be a significant precursor of the decision about whether to try a new practice or not because the emotional aspect of the attitudes can influence

significantly the decision-making processes of innovation adoption (Aarons *et al.,* 2012). By extension, teacher beliefs about EBPs should contribute significantly to the success of their implementation. Past research suggests that there is greater intervention and service acceptance if a significant proportion of the setting's staff is positively inclined to adopt it (Detrich and Lewis, 2013; Wiggins *et al.,* 2012). Resources and organisational support, such as funding, leadership support, manageable workloads and opportunities for learning, are major facilitators of intervention implementation in education (Brown and Zhang, 2017a, 2017b). However, considering the importance of professional attitudes in the application of new services or interventions in organisations, the study of implementation of EBPs for social learning in education should also examine the extent to which teacher attitudes can facilitate it.

To appreciate the importance of professionals' attitudes for the implementation of EBPs it is important to consider them in the context of the implementation process. The implementation of EBPs is a complex, multiphase process which involves multiple influential factors operating at different ecological levels e.g. environmental, organisational, and individual (Novins *et al.,* 2013). Based on key frameworks used in implementation science, the implementation process of a practice can be summarised broadly into four phases (e.g. Damanpour and Schneider, 2006; Fixsen *et al.,* 2005; Greenhalgh *et al.,* 2004; Wiggins *et al.,* 2012). The first is a preparation phase which is often encountered in the literature as initiation or exploration phase and includes decisions on intervention or practice adoption. The second is the installation phase where the new practice or intervention gets started. The third is the implementation phase where the intervention or practice is ready for use and if required is further adapted based on close monitoring and evaluation. The sustainability or routinisation phase is the final phase and includes the shift during which a practice or intervention becomes routine.

The preparation phase is very important because it determines the decision to proceed with the adoption of an intervention, service or practice (Aarons, 2005; Damanpour and Schneider, 2006; Frambach and Schillewaert, 2002; Schoenwald and Hoagwood, 2001; Simpson, 2002; Proctor *et al.,* 2011). The key factors influencing the process of adoption decision can be classified in to four distinct categories (Wisdom *et al.,* 2014): external system (e.g. governmental and policy factors), organisational, innovation, and individual. Because 'People are not passive recipients of innovations' (Greenhalgh *et al.,* 2004, p. 598) the importance of individual factors is self-evident. Hence, various long-standing theoretical models of innovation adoption propose professionals attitudes to EBPs as one of the most influential factors of the adoption process at individual level (Aarons, 2005; Frambach and Schillewaert, 2002; Greenhalgh *et al.,* 2004; Wisdom *et al.,* 2014; Smith *et al.,* 2018; Proctor *et al.,* 2011). Johnson (2017) explains that in an implementation context as 'heterogeneous' as the early childhood education context, understanding the individual factors that influence the decisions to act to support the implementation of an intervention is needed. Therefore, it is plausible that attitudes can play an equally important role in the adoption of EBPs for early childhood social learning in routine professional practice as other individual factors do, such as qualifications, and factors operating at system and organisational level, such as time, resources and support; arguably, before teachers accept and implement a practice they may have to form a positive attitude about it. A better understanding of teacher attitudes towards EBPs in the context of early childhood social learning can provide an important insight into the teacher factors that influence the success of the implementation.

Research-informed teaching: a promising approach to promote teacher attitudes towards EBPs for early childhood social learning

Research-informed teaching (RIT) refers to informing teacher practice through knowledge acquired through teacher engagement in and with research (Brown *et al.,* 2017). There are two major types of educational research: existing research produced by researchers and research generated by teachers. RIT could potentially help cultivate positive views towards EBPs among teachers with the view to maximise chances of implementation. Through the appreciation and use of research, teachers who engage in RIT may develop a more positive view about using EBPs to support and actively look for them. Therefore, it is plausible that increases in teacher engagement in RIT are linked to increases in EBP implementation through teachers' attitudes towards EBPs. Arguably, barriers and facilitators that pertain to the organisation, individual, and intervention or practice itself are also important in the decision about whether a practice is going to be implemented. Furthermore, RIT may be also directly linked to higher use of EBPs. However, it is expected that attitudes themselves would make a unique contribution to the final decision about implementation, considering that professional attitudes are a strong predictor of EBP implementation. Figure 1 shows a conceptual model of the proposed pathway from RIT to EBP implementation and the role of teacher attitudes.

It is important to note that the study of teacher engagement in RIT is still in its infancy (Nelson and Campbell, 2017) and although there are studies to suggest that research is valued and appreciated by teachers (Nelson et al., 2015; Coldwell et al., 2017), the interest to use research evidence is not universally shared across the sector (Judkins et al., 2014; Cain, 2015; Procter, 2015). Also, the benefits of RIT are not 'comprehensively and systematically established' (Brown et al., 2017, p. 161) but there is some evidence on its positive impact (Nelson and Campbell, 2017). Some of the documented benefits include assistance with practice-based

problem identification and problem solving in the context of high performing schools, and association with positive teacher outcomes, such as improved knowledge, skills, and confidence (Brown et al., 2017). It is worth investigating whether RIT holds promise for increasing acceptance of EBPs among teachers and contribute to successful implementation of EBPs both in the form of specific practices and full-scale comprehensive intervention programmes for early childhood social learning.

[Figure 1]

Final reflections

The early years are a highly critical period in a child's life and social learning comprises a building block for social and emotional wellbeing and academic achievement. By embedding the use of EBPs in day-to-day professional practice teachers could support pupils' outcomes successfully. According to established models of EBP implementation in organisations and past research professionals' attitudes can determine very early on the decision to adopt an intervention or practice and, as a result, they play a crucial role in the implementation process. It is plausible that teacher attitudes towards the use of EBPs for early childhood social learning could influence implementation significantly. Clearly, EBPs are not 'self-implementing mechanisms that will be embraced and used automatically as they are identified' (Cook and Cook, 2013, p. 72). Prior to the implementation of any intervention programme or instructional practice it is important to ensure that those involved in the implementation process hold the right attitude before they can accept it and eventually implement it. Therefore, to understand if and how teacher views can influence any decisions to use EBPs to promote children's social

learning in the early years the study of teacher attitudes towards EBPs is critical. Cultivating a culture of using research to inform teaching and practice could potentially lead to a more open mind about using EBPs to support pupils learning. However, before looking at shaping teachers' views about EBPs for social learning it is important to establish whether, in fact, teacher attitudes have a significant impact on social learning intervention adoption and implementation. In addition, it is important to consider this impact in the context of other key factors that operate across different levels and time points in the lifecycle of the implementation process and are known to determine the implementation outcome. Also, it will be important to examine the impact and processes whereby RIT may exert its influence on teacher attitudes and practice. For instance, what aspect of RIT can lead to positive attitudes toward EBPs? Is it the engagement with research in the form of articles, books, training and/or the acquisition of knowledge on available interventions that makes teachers less skeptical about integrating EBPs, and what is the role of teacher attitudes toward using research to inform practice and teacher knowledge about research? To date, we have not fully understood the mechanisms whereby teacher engagement with research can influence practice (Coldwell *et al.,* 2017). Finally, another important area of investigation is whether the pathway from RIT to increases in EBPs implementation through teacher attitudes is linked to any positive outcomes for the children such as improved social skills and/or reductions in behavior difficulties.

References

Aarons, G.A. (2005), "Measuring Provider Attitudes Toward Evidence-Based Practice: Consideration of Organisational Context and Individual Differences", *Child and adolescent psychiatric clinics of North America*, Vol. 14 No. 2, pp. 255-271.

Aarons, G., Green, A. and Miller, E. (2012), "Researching Readiness for Implementation of Evidence-Based Practice" in Kelly, B. and Perkins, D., (Eds)., *Handbook of Implementation Science for Psychology in Education*, Cambridge University Press, Cambridge, pp. 150-164.

Aarons, G.A., Hurlburt, M. and Horwitz, S.M. (2011), "Advancing a conceptual model of evidence-based practice implementation in public service sectors", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 38 No. 1, pp. 4-23.

Allen, G. (2011), "Early intervention: the next steps, an independent report to Her Majesty's government by Graham Allen MP″ available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284086/early-intervention-next-steps2.pdf (accessed 08 November 2019).

Blair, C. and Diamond, A. (2008), "Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure", *Development and Psychopathology*, Vol. 20 No. 3, pp. 899-911.

Bonell, C.P., Hargreaves, J., Cousens, S., Ross, D., Hayes, R., Petticrew, M. and Kirkwood, B.R. (2011), "Alternatives to randomisation in the evaluation of public health interventions: design challenges and solutions", *Journal of Epidemiology and Community Health*, Vol. 65 No. 7, pp. 582-587.

Brown, C., Schildkamp, K. and Hubers, M.D. (2017), "Combining the best of two worlds: a conceptual proposal for evidence-informed school improvement", *Educational Research*, Vol. 59 No. 2, pp. 154-172.

Brown, C. and Zhang, D. (2017a), "Accounting for discrepancies in teachers' attitudes towards evidence use and actual instances of evidence use in schools", *Cambridge Journal of Education*, Vol. 47 No. 2, pp. 277-295.

Brown, C. and Zhang, D. (2017b), "How can school leaders establish evidence-informed Schools: An analysis of the effectiveness of potential school policy levers", *Educational Management Administration and Leadership*, Vol. 45 No. 3, pp. 382-401.

Bryk, A.S. (2015), "2014 AERA distinguished lecture: Accelerating how we learn to improve", *Educational Researcher*, Vol. 44 No. 9, pp. 467-477.

Burns, T. and Schuller, T. (2007), "The evidence agenda" in OECD (Ed.) *Evidence in education: Linking research and policy*, OECD, Paris, pp. 15-32.

Cain, T. (2015), "Teachers' engagement with research texts: beyond instrumental, conceptual or strategic use", *Journal of Education for Teaching*, Vol. 41 No. 5, pp. 478-492.

Center on the Developing Child at Harvard University (2011), "Building the Brain's "Air Traffic Control" System: How Early Experiences Shape the Development of Executive

Function: Working Paper No. 11.", available at: https://developingchild.harvard.edu/wp-content/uploads/2011/05/How-Early-Experiences-Shape-the-Development-of-Executive-Function.pdf (accessed 15 December 2017)

Coldwell, M., Greany, T., Higgins, S., Brown, C., Maxwell, B., Stiell, B., Stoll, L., Willis, B. and Burns, H. (2017), "Evidence-informed teaching: an evaluation of progress in England", available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/625007/Evidence-informed_teaching_-_an_evaluation_of_progress_in_England.pdf (08 December 2018).

Cook, B.G. and Cook, S.C. (2013), "Unraveling Evidence-Based Practices in Special Education", *Journal of Special Education*, Vol. 47 No. 2, 71-82.

Cooper, A., Klinger, D.A. and McAdie, P. (2017), 'What do teachers need? An exploration of evidence-informed practice for classroom assessment in Ontario', *Educational Research*, Vol. 59 No. 2, pp. 190-208.

Damanpour, F. and Schneider, M. (2006), "Phases of the Adoption of Innovation in Organisations: Effects of Environment, Organisation and Top Managers", *British Journal of Management*, Vol. 17 No. 3, pp. 215-236.

Davies, P. (1999), "What is evidence-based education?", *British Journal of Educational Studies*, Vol. 47 No. 2, pp. 108-121.

Detrich, R. and Lewis, T. (2013), "A Decade of Evidence-Based Education: Where Are We and Where Do We Need to Go?", *Journal of Positive Behavior Interventions*, Vol. 15 No. 4, pp. 214-220.

Durlak, J.A., Weissberg, R.P., Dymnicki, A.B., Taylor, R.D. and Schellinger, K.B. (2011), "The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions", *Child Development*, Vol. 82 No. 1, pp. 405-432.

Dusenbury, L., Calin, S., Domitrovich, C. and Weissberg, R.P. (2015), "What Does Evidence-Based Instruction in Social and Emotional Learning Actually Look Like in Practice? A Brief on Findings from CASEL's Program Reviews", available at: https://www.casel.org/wp-content/uploads/2016/08/PDF-25-CASEL-Brief-What-Does-SEL-Look-Like-in-Practice-11-1-15.pdf (accessed 18 July 2018).

Evans, R., Murphy, S. and Scourfield, J. (2015), "Implementation of a school-based social and emotional learning intervention: understanding diffusion processes within complex systems", *Prevention Science*, Vol. 16 No. 5, pp.754-764.

Farley, K.S., Brock, M.E. and Winterbottom, C. (2018), "Evidence-Based Practices: Providing Guidance for Early Childhood Practitioners", *Journal of Research in Childhood Education*, Vol. 32 No. 1, pp. 1-13.

Fixsen, D.L., Naoom, S.F., Blase, K.A., Friedman, R.M. and Wallace, F. (2005), "Implementation Research: A Synthesis of the Literature", available at: https://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/NIRN-MonographFull-01-2005.pdf (accessed 20 May 2018).

Frambach, R.T. and Schillewaert, N. (2002), "Organisational innovation adoption - A multi-level framework of determinants and opportunities for future research", *Journal of Business Research*, Vol. 55 No. 2, pp. 163-176.

Goldacre, B. (2013), "Building evidence into education", available at: http://media.education.gov.uk/assets/files/pdf/b/ben%20goldacre%20paper.pdf (accessed 6 March 2018).

Goodman, A., Joshi, H., Nasim, B. and Tyler, C. (2015), "Social and emotional skills in childhood and their long-term effects on adult life", available at: file:///C:/Users/akall/Downloads/social-and-emotional-skills-in-childhood-and-their-long-term-effects-on-adult-life.pdf (accessed 8 August 2018).

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P. and Kyriakidou, O. (2004), "Diffusion of innovations in service organisations: Systematic review and recommendations", *Milbank Quarterly*, Vol. 82 No. 4, pp. 581-629.

Heo, K.H., Cheatham, G.A., Hemmeter, M.L. and Noh, J. (2014), "Korean early childhood educators' perceptions of importance and implementation of strategies to address young children's social-emotional competence", *Journal of Early Intervention*, Vol. 36 No. 1, pp. 49-66.

Horwitz, S.M., Chamberlain, P., Landsverk, J. and Mullican, C. (2010),"Improving the mental health of children in child welfare through the implementation of evidence-based parenting interventions", *Administration and Policy in Mental Health*, Vol. 37 No. (1-2), pp. 27-39.

Humphrey, N. (2013), *Social and emotional learning: A critical appraisal*, London, SAGE Publications Limited.

Jakobsen, I. S., Fergusson, D., and Horwood, J. L. (2012), "Early conduct problems, school achievement and later crime: Findings from a 30-year longitudinal study", *New Zealand Journal of Educational Studies,* Vol. 47 No. 1, pp. 123.

Johnson, L.D. (2017), "Scaling the pyramid model across complex systems providing early care for preschoolers: Exploring how models for decision making may enhance implementation science", *Early Education and Development*, Vol. 28 No. 7, pp. 822-838.

Judkins, M., Stacey, O., McCrone, T. and Inniss, M. (2014). "Teachers' Use of Research Evidence: A case study of United Learning schools", available at: https://www.nfer.ac.uk/publications/IMUL01/IMUL01researchsummary.pdf (accessed 21 August 2019).

[redacted]

[redacted]

Kern, L. and Clemens, N.H. (2007), "Antecedent strategies to promote appropriate classroom behavior", *Psychology in the Schools*, Vol. 44 No. 1, pp. 65-75.

Kretschmer, T., Hickman, M., Doerner, R., Emond, A., Lewis, G., Macleod, J., Maughan, B., Munafo, M.R. and Heron, J. (2014), "Outcomes of childhood conduct problem trajectories in early adulthood: findings from the ALSPAC study", *European Child and Adolescent Psychiatry*, Vol. 23 No. 7, pp. 539-549.

Lilienfeld, S.O., Ritschel, L.A., Lynn, S.J., Cautin, R.L. and Latzman, R.D. (2013), "Why many clinical psychologists are resistant to evidence-based practice: Root causes and constructive remedies", *Clinical Psychology Review*, Vol.33 No.7, pp. 883-900.

Marope, P.T.M. and Kaga, Y. (2015), "Investing against evidence: The global state of early childhood care and education", available at: https://unesdoc.unesco.org/ark:/48223/pf0000233558 (accessed 20 July 2018).

McLeod, B.D., Sutherland, K.S., Martinez, R.G., Conroy, M.A., Snyder, P.A. and Southam-Gerow, M.A. (2017), "Identifying Common Practice Elements to Improve Social, Emotional, and Behavioral Outcomes of Young Children in Early Childhood Classrooms", *Prevention Science*, Vol. 18 No. 2, pp. 204-213.

Moullin, J.C., Dickson, K.S., Stadnick, N.A., Rabin, B., Aarons, G. (2019), "Systematic review of the Exploration, Preparation, Implementation, Sustainment (EPIS) framework", *Implementation Science*, Vol. 14 No. 1, pp. 1-16.

Navarro-Cruz, G.E. and Luschei, T. (2018), "International Evidence on Effective Early Childhood Care and Education Programs: A Review of Best Practices", *Global Education Review*, Vol. 5 No. 2, pp. 8-27.

Nelson, J. and Campbell, C. (2017), "Evidence-informed practice in education: meanings and applications", *Educational Research*, Vol. 59 No.2, pp.127-135.

Nelson, J., Mehta, P., Sharples, J. and Davey, C. (2015), "Measuring teachers' research engagement: Findings from a pilot study", available at: https://educationendowmentfoundation.org.uk/public/files/Evaluation/Research_Use/NFER_Research_Use_pilot_report_-_March_2017_for_publication.pdf (accessed 18 March 2018).

Nilsen, P. (2015), "Making sense of implementation theories, models and frameworks", *Implementation science*, Vol. 10 No. 1, pp. 10-53.

Nix, R.L., Bierman, K.L., Domitrovich, C.E. and Gill, S. (2013), "Promoting Children's Social-Emotional Skills in Preschool Can Enhance Academic and Behavioral Functioning in Kindergarten: Findings From Head Start REDI", *Early Education and Development*, Vol. 24 No. 7, pp. 1000-1019.

Norwich, B. (2014), "Chapter 2. Context, interests and methodologies", *Journal of Research in Special Educational Needs,* Vol. 14 No. 3, pp. 193-196.

Novins, D.K., Green, E., A., Legha, R.K. and Aarons, G.A. (2013), "Dissemination and Implementation of Evidence-Based Practices for Child and Adolescent Mental Health: A

Systematic Review", *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 52 No. 10, pp. 1009–1025.

Parsonson, B.S. (2012), "Evidence-Based Classroom Behaviour Management Strategies", *Kairaranga*, Vol. 13 No. 1, pp. 16-23.

Procter, R. (2015), "Teachers and school research practices: the gaps between the values and practices of teachers", *Journal of Education for Teaching*, Vol. 41 No. 5, pp. 464-477.

Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Griffey, R. and Hensley, M. (2011), "Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 38 No. 2, pp.65-76.

Purper, C.J. (2016), "Right at Your Fingertips: Important Web-Based Resources for Understanding Evidence-Based Practices", *Early Childhood Education Journal*, Vol. 44 No. 4, pp. 403-408.

Russell, G., Ryder, D., Norwich, B. and Ford, T. (2015), "Behavioural Difficulties That Co-occur With Specific Word Reading Difficulties: A UK Population-Based Cohort Study", *Dyslexia*, Vol. 21 No. 2, pp. 123-141.

Schoenwald, S.K. and Hoagwood, K. (2001), "Effectiveness, transportability, and dissemination of interventions: What matters when?", *Psychiatric services*, Vol. 52 No. 9, pp. 1190-1197.

Simonsen, B., Fairbanks, S., Briesch, A., Myers, D. and Sugai, G. (2008), "Evidence-based practices in classroom management: Considerations for research to practice", *Education and Treatment of Children*, Vol. 31 No. 3, pp. 351-380.

Simpson, D.D. (2002), "A conceptual framework for transferring research to practice", *Journal of Substance Abuse Treatment*, Vol. 44 No. 4, pp. 171-182.

Smith, R.A., Kim, Y., Zhu, X., Doudou, D.T., Sternberg, E.D. and Thomas, M.B. (2018). "Integrating models of diffusion and behaviour to predict innovation adoption, maintenance, and social diffusion", *Journal of health communication*, Vol. 23 No. 3, pp.264-271.

Steed, E.A. and Roach, A.T. (2017), "Childcare Providers' Use of Practices to Promote Young Children's Social-Emotional Competence", *Infants and Young Children*, Vol. 30 No. 2, pp. 162-171.

Sutherland, K.S., McLeod, B.D., Conroy, M.A. and Cox, J.R. (2013), "Measuring Implementation of Evidence-Based Programs Targeting Young Children at Risk for Emotional/Behavioral Disorders Conceptual Issues and Recommendations", *Journal of Early Intervention*, Vol. 35 No. 2, pp. 129-149.

Sylva, K., Melhuish, E., Sammons, P., Siraj, I., Taggart, B., Smees, R., Toth, K., Welcomme, W. and Hollingworth, K. (2014), "Students' educational and developmental outcomes at age 16: Effective Pre-school, Primary and Secondary Education (EPPSE 3-16) Project research report", available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data

/file/351496/RR354_-_Students__educational_and_developmental_outcomes_at_age_16.pdf (accessed 18 December 2018)

Vostanis, P., Humphrey, N., Fitzgerald, N., Deighton, J. and Wolpert, M. (2013), "How do schools promote emotional well-being among their pupils? Findings from a national scoping survey of mental health provision in English schools", *Child and Adolescent Mental Health*, Vol. 18 No. 3, pp. 151-157.

Waschbusch, D.A., Breaux, R.P. and Babinski, D.E. (2018), "School-Based Interventions for Aggression and Defiance in Youth: A Framework for Evidence-Based Practice", *School Mental Health*, Vol. 11 No. 1, pp. 1-14.

West, S.G., Duan, N., Pequegnat, W., Gaist, P., Des Jarlais, D.C., Holtgrave, D., Szapocznik, J., Fishbein, M., Rapkin, B. and Clatts, M. (2008), "Alternatives to the randomized controlled trial", *American Journal of Public Health*, Vol. 98 No. 8, pp. 1359-1366.

Whear, R., Thompson-Coon, J., Boddy, K., Ford, T., Racey, D. and Stein, K. (2013), "The effect of teacher-led interventions on social and emotional behaviour in primary school children: a systematic review", *British Educational Research Journal*, Vol. 39 No. 2, pp. 383-420.

Wiggins, M., Austerberry, H. and Ward, H. (2012), "Implementing evidence-based programmes in children's services: key issues for success", available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/183483/DFE-RR245.pdf (accessed 09 January 2019).

Williams, N.J. and Beidas, R.S. (2019), "Annual Research Review: The state of implementation science in child psychology and psychiatry: a review and suggestions to advance the field", *Journal of Child Psychology and Psychiatry,* Vol. 60 No. 4, pp. 430-450.

Wisdom, J.P., Chor, K.H.B., Hoagwood, K.E. and Horwitz, S.M. (2014), "Innovation adoption: a review of theories and constructs", *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 41 No. 4, pp. 480-502.

Wigelsworth, M., Qualter, P. and Humphrey, N. (2017), "Emotional self-efficacy, conduct problems, and academic attainment: Developmental cascade effects in early adolescence", *European Journal of Developmental Psychology*, Vol. 22 No. 2, pp.172-189.

Figure 1. A conceptual model of the association between RIT, teacher attitudes about EBPs and the implementation of EBPs for early childhood social learning